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COMPLETE SPECIFICATION.

Improvements in Body-coolers and Fever-reducers and Supporting Frames therefor.

I, EDWIN BELMONT MAGILL, of La Crosse, in the County of La Crosse, in the State of Wisconsin, United States of America, Banker, do hereby declare the nature of my invention for IMPROVEMENTS IN BODY-COOLERS AND FEVER-REDUCERS AND SUPPORTING FRAMES THEREFOR, and in what manner the same is to be performed, 5 to be particularly described and ascertained in and by the following statement:—

This invention relates, as hereinafter set forth, to a novel device for cooling various portions of the human body in the reduction of fevers and for other purposes and in a frame or support for adjustably supporting the cooling device in appropriate position relatively to the body.

10 In the accompanying drawings I have represented, in figures 1 to 4 inclusive, the apparatus capable of general application to the trunk, limbs and neck, though it may also be used for the head. In figures 5 to 7 inclusive, is shown a form of apparatus especially adapted for use in cooling and reducing fevers and inflammation in the head. In the several illustrations illustrated and referred to the apparatus is equally 15 well-adapted for cooling portions of quick bodies and for maintaining corpses at the desired temperature.

The cooling apparatus in all of the forms in which it is susceptible of being constructed consists, essentially, of one or more boxes or trays having ice-receiving and holding portions each having the walls which, when the apparatus is in use, are 20 adjacent to the part, to be cooled provided with guarded or shielded air passages through which the cooled air after contact with the ice passes to the body certain details of construction being also employed to adapt more than one section of the apparatus being employed as desired and to connect such together and support the same in suitable position all as hereinafter fully described.

25 In the accompanying drawings:—

Figure 1, represents a perspective view of my improved body-cooler and fever-reducer of a shape suitable for employment in cooling various portions of the body.

Figure 2, represents a longitudinal section taken on the line *a, a*, of figure 1.

Figure 3, represents a transverse section taken on the line *b, b*, of figure 1.

30 Figure 4, represents a detail view, partly broken away, of one of the side boxes or ice receptacles and air-coolers.

Figure 5, represents my frame or support for adjustably supporting the cooler at any desired altitude above the body and so as to adapt the same for application to different parts of the body and to people of varying size, this figure also represents 35 the manner in which the cooler is adjustably supported thereon.

Figure 6, represents a perspective view of my complete apparatus as designed for application to the head for cooling the same.

Figure 7, represents a sectional elevation of the bottom portion of the apparatus.

Figure 8, represents a similar view of the top portion.

40 This apparatus is designed for cooling portions of the human anatomy generally for the purpose of reducing inflammation and fevers therein, reducing the temperature, cooling corpses and as a substitute for the application of and constant changing of wet cloths on persons the apparatus being especially serviceable in cases of brain fever, wounds, spinal meningitis and inflammation and fever generally.

45 The forms shown in the drawings are such as have been found especially advantageous in treating the head and other parts of the human body generally.

In some cases, however, it may be found advantageous to modify somewhat the

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contour of either one or more of the respective sections of the device as, for instance to curve either of the sections so as to more readily conform to the shape of the portion of the body to be treated. But as the general construction of the apparatus would be followed in its essential characteristics and such changes in shape would readily suggest themselves to those skilled in the art and having knowledge of the specific requirements in individual cases I have not deemed it necessary to illustrate herein such modifications in contour as may be made without departing from the spirit of my present invention. 5

Referring now to figures 1 and 4 of the drawings, the ice receptacle and air-cooler consists of a central section 1, which may be either of a substantially square form as shown or of circular, oblong, curved or other shape according to requirement, and a plurality of other ice-receptacles and air-coolers suspended from and supported upon said central ice-receptacle with capability of ready attachment to and removal therefrom and also of horizontal adjustment relatively thereto as will be presently explained. 10 15

The central ice-chamber and air-cooler 1, consists of a tray or open-topped box having vertical plane outer side walls 3, and end walls 4, a bottom 5, and a central recess or opening 6, guarded by upwardly-extending perforated walls 7; within this central recess or opening 6, is another ice-receiving box or chamber and air-cooler 8, also having perforated vertical side walls 9; 10, represents a hood which rests upon the top edges of the side walls 7 and 9 and extends across and covers the air space 11, between the same said hood being provided on each side with outwardly-flaring depending flanges or aprons 12, which extend across the perforations or wire gauze 13, in the vertical walls 7 and 9 for the purpose of fending the ice contained within the respective ice-chambers 1, and 8, from said perforations and forming a space intervening the ice and the side walls 7, and 9, through which air after being cooled by its passage over the ice within said chambers passes to the patient. By means of these flanges or aprons the water resultant from the melting of the ice will be deflected from the perforations in the side walls and prevented from passing therethrough and as, naturally, the cooled air will seek the lowest point of exit said aprons form a flue along which the cooled air will pass to and through the perforated side walls to that portion of the body to which they are adjacent. 14, represents a waste pipe or tube connecting the chambers 1, and 8, through which the waste water resultant from the melting of the ice in the chamber 8, passes to the ice-chamber 1, and 15, represents a similar water-discharge pipe extending outwardly from the ice chamber 1, and to which a rubber or other tube or pipe 16, is connected for conveying the waste water to a similar receptacle, this tube or pipe 16, may, if desired, be carried to one of the side or end ice-holders to be presently described so as to discharge the waste water therein and thus reduce the number of waste-water receptacles employed. From or adjacent to the respective corners of either or each end or side of the outer ice chamber 1, and either from the upper or other suitable portion thereof extend, horizontally, wires or rods 17, upon which side or end ice-receiving vessels 18, are removably supported. A convenient mode of suspending these vessels 18, is represented in the drawing wherein sleeves or tubes 19, extend from the upper edges of said vessels so as to permit of their being readily slipped on or off said rods though, of course, said rods may extend from any other portion than the top of the chamber 1. These rods are of a length to permit of the side ice chambers being adjusted in any position in any desired proximity to the central chamber 1, to accommodate the size of that portion of the body to which the apparatus is applied. The side, or, as the case may be, end ice-receiving and air-cooling chambers 18, are of greater depth than the depth of the central chambers 1, and 8. By this construction while the central chambers 1, and 8, furnish a supply of cooled air to the upper surface of that portion of the body under treatment the depending side or end chambers 18, furnish a supply of cooled air to the side surfaces of that portion of the body under treatment. While I do not confine myself to the precise form and shape of said side or end of chambers 20 25 30 35 40 45 50 55

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illustrated in the drawings, I find that form a very desirable one as by constructing the lower portion of the outer wall 20, of downwardly-tapering form 21, the waste water from the ice within said chambers 18, will readily flow down to the bottom and discharge through the exit pipe 22, to which one end of a rubber or other tube 23, is connected through which the waste water is carried off. The inner walls 24, of the side or end chambers 18, are of a shape to permit of their resting snugly, when desired, against the adjacent face or wall of the central ice chamber and air-cooler 1. In the drawings I have shown the central ice-chamber and air-cooler of square form and the side chambers of oblong form, but the shapes thereof may be varied without departing from the fundamental details of construction of my invention. 25 represents an ice-supporting grating within each of the chambers 18, a suitable distance above the bottom thereof—in the drawings I have represented said grating as just above the tapering bottom portion of the outer walls though they may be arranged in any other desired position. 26, represents air passages in the inner walls 24, a suitable distance, preferably, below the ice-supporting gratings 25. These air passages may either be formed directly in the walls 24, or a slot or opening may be formed in each wall and covered with wire or other gauze. 27, represents a hood or apron extending across and depending below the air passages and within the ice-chambers 18, so as to guard said passages from contact with water or ice and prevent water passing through said air passages; these hoods or aprons 27, extend at a suitable angle so as to form flues up which the cooled air passing down through the ice will pass to and through the air passages 26, and so as, also, to constitute an effectual shield for said air passages and fend them from contact with either ice or water. 28, represents hooks extending from the respective ends of the end or side chambers 18, and 29, represents a wire or other suitable frame or support for supporting the air-cooling device in position above or relative to the patient. In the drawings I have represented this frame as composed of four sections each having eyed sides 30, and an outwardly-extending foot 31, for supporting and bracing the frame in position. Each adjacent pair of sections of this frame is removably connected and braced together by a hooked brace rod 32, which hooks into an eye 33, on the lower portion of the adjacent sections. By this means the respective sections can be readily connected together and disconnected from each other while also furnishing a secure bracing connection to the several members of the frame. A convenient, ready and inexpensive manner of constructing this frame is to form the respective sections each of a single length of wire bent or doubled over to form the side walls, of a distance apart equal to the width, transversely, of the side or end ice-chambers 18, and with the wire forming said side walls curved or bent at suitable distances apart to form eyes 30, with which the hooks 28, engage to support the ice-chambers thereon. By constructing the frame 29, with eyed supports 30, and providing the end chambers 18, with hooks 28, it will be observed that the ice chambers can be supported at any desired height and their vertical adjustment readily secured at any time.

Where wire is employed in the construction of the frame sections the free ends thereof are bent over into outwardly-curved form to form the feet 31, and their extreme ends then connected together by soldering or other suitable means. In lieu of forming the respective sections of the frame of wire they may each be formed by casting or of sheet or other metal or material as desired as long as they are provided with means, substantially as described, for affording a vertically adjustable support for the ice chambers. If desired the end chambers 18, may be provided with eyes and the frame with hooks to engage therewith.

In such cases as may be desired either one or both of the chambers 18, may be employed independently of the central chamber 1; such application and use would be desirable where it is desired to cool or reduce fever in side or vertical portions of the anatomy and not treat the adjacent horizontal portion thereof. Furthermore, in lieu of providing the side or end chambers 18, with suspension devices, such as described, to connect the same with the frame, such suspension devices may be formed on or

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attached to the central chamber 1, and the frame engaged therewith so as to afford a central support to the several chambers or permit of the central chamber, alone, being employed as may be deemed necessary in individual cases.

Referring now to figures 6, 7, and 8, of the drawings which illustrate a construction especially adapted for the treatment of the head. 5

35, represents the bottom portion of the apparatus. In this construction the bottom section 35, is formed of semicircular shape to adapt it to fit around and encircle the base or rear and sides of the head. This bottom section is double-walled as shown the outer wall 36, being plane faced and having one or more holes 37, in the bottom thereof through which water resulting from condensation 10 and the melting of ice may discharge, such water being carried off away from the couch upon which the user may be by a tube or tubes 38, engaged with a short tube or pipe 39, extending outwardly from the opening 37. 40, represents the inner wall of the bottom section of the apparatus. This, as shown is also of semi-circular shape and has a circumferential series of perforations 41, therein through 15 which the cooled air passes from the ice chamber 42, between the walls 36, and 40, to that part of the body to which the apparatus is applied. 43, represents an outwardly and vertically-extending apron extending from the outer face of the inner wall 40, and within the ice chamber to ensure the cooled air after coming in contact with the ice 44, in the chamber 42, passing to the bottom thereof and from thence 20 up between said apron and the adjacent face of the inner wall to and through the perforations 41, to the body of the user. 45, represents a semi-circumferential gutter extending outwardly from the bottom of the inner wall for the purpose of catching any moisture or water of condensation that may trickle down the inner wall and 46, represents a discharge opening communicating with the ice chamber 42, 25 through which such water may discharge. 47, represents the closed ends of the apparatus closing the ice chamber. 48, represents rubber sheathing encircling the upper rims or beads 49, of the section and the rod 50, for bracing said section and assisting in the support of the top section to be presently described. By thus covering the rims a cushion is provided upon which the upper section rests and 30 thereby all noise that would otherwise result from the contact of movement of the two sections one against the other is deadened; such noise-deadening covering may also be placed upon or over such other exposed portions of the apparatus as would be liable to create noise upon coming in contact with other articles or with the other parts of the apparatus. This lower section 35, is designed to rest directly over that 35 portion of the body to be cooled, the ice or other cooling medium 44, being placed within the chamber 42, which as shown, is open at its top to admit air which by the ordinary and well-known natural laws in such cases automatically descends, as it becomes cooled by contact with the ice, and seeking an outlet, is by the pressure of the superincumbent body of cooled air forced up to the only outlet available viz.: 40 between the apron 43, and inner wall 49, to and through the perforations 41, in the wall 40, onto the body of the user. In the construction shown which is the form especially adapted for use on the head, the central space 51, within which the head rests is entirely open. As a consequence, were such lower section alone employed the result would be that the cold air would be supplied simply around the base and 45 sides of the head while the crown of the head would not be subjected to cooling action. The employment of a single section, as the bottom one, may, in some cases be advantageous and all that is necessary, but where, as would usually be the case, it might be desired to confine the cold air in contact with that part of the body to which the apparatus is applied, I employ a top section or cap 52, of semi-cylindrical 50 dish-shape with a front wall 53. This top section or cap rests in use, upon the covered top rim 49, and rod 50, of the lower section thereby covering the central space 51, and covering the crown of the head or, as the case may be, the upper or exposed surface of that part of the body to which the apparatus is applied. The front wall 53, and side walls 54, of this top section are of sufficient height to form 55 with the bottom 55, an ice-receiving chamber 56; the bottom 55, slopes gradually

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rom the center to the outer walls so as to permit of the water resulting from condensation and the melting of the ice flowing to and passing out through a discharge opening 57, in the side wall; with this opening communicates a short outwardly-extending pipe 58, to which one end of a rubber or other tube 59, is attached the
 5 other end of which rests within the ice chamber 42, of the lower section 35, into which it discharges the water passing therethrough.

60, represents a box or hood extending upwardly from the center of the bottom portion of the section or cap 52; the side and end walls of this box or hood are at their upper portion perforated as shown at 61, through which cold air passes from
 10 contact with the ice in the chamber 56, to the body of the user; the lower portion of the walls of this box or hood are imperforate to prevent any water coming in contact with the user; 62, represents a cap or cover for the top of this box or hood the edges of said cap extending horizontally beyond the side walls and being down-turned as shown to afford a hand grasp whereby the section 52, may be transported and placed
 15 in and removed from position. A central opening 63, is formed in the bottom 55, of the section 52, which is guarded by the hood or box and through which the cooled air passes from the perforated side walls of said hood to the body of the user. By the employment, conjointly, of the two sections 35, and 52, above described the application of cooled air is effectually secured over the entire surface of that portion
 20 of the body to which the apparatus is applied.

This device can be, with but slight change in contour, equally well adapted for application to other parts of the human anatomy it being simply necessary to construct the section 35, of either circular, square or other shape to adapt it to conform to the contour of that portion of the body to which it is to be applied and, when such part is
 25 desired to be employed, similarly shaping the section 52, the general operative arrangement and construction of parts being in all cases as above described in relation to form of apparatus designed for application to the head.

Having now particularly described and ascertained the nature of my said invention, and in what manner the same is to be performed, I declare that what I
 30 claim is:—

First. An air-cooling device for cooling portions of the human body and reducing fever therein composed of one or more ice receptacles and air-coolers having guarded air passages in the side thereof and a frame adapted to support said ice-holder and air-cooler with capability of vertical adjustment thereon.

35 Second. An air-cooling device comprising a central ice-receptacle having guarded air passages therein, one or more ice-receptacles and air coolers attached to said central ice receptacle and having guarded air passages therein, suspension devices extending from said air cooler or coolers and a frame adapted to engage said suspension devices and support the respective air and body coolers with capability of vertical
 40 adjustment thereon.

Third. An air and body-cooling device comprising a central ice-receptacle having guarded air passages in its inner walls, one or more ice-receptacles removably supported on said central receptacle with capability of horizontal adjustment thereon and having guarded air passages in the inner walls thereof, a supporting frame, and sus-
 45 pension devices, as hook and eye connections, between the frame and ice holder or holders for securing vertically-adjustable supporting connections between said frame and ice holders.

Fourth. The ice holder and air cooler 1, herein described consisting of an outer ice receptacle having air passages in its inner walls and an air duct or flue communicating with said air passages and shielding the same from contact with ice and
 50 water, and an inner ice holder and air cooler having air passages in its side walls and an air duct or flue adapted to shield said air passages from ice and water contact.

Fifth. The ice holder and air cooler 1, herein described consisting of an outer ice receptacle having air passages in its inner walls and an open central bottom portion,
 55 a central ice holder and air cooler having air passages in its side walls and of less

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circumference than and arranged within the central portion of the outer ice holder, and a hood connecting the adjacent walls of the respective ice receptacles and covering the space between the same and having depending flanges for the purpose of guarding the air passages in the respective ice receptacles from ice and water contact and of forming air ducts or flues. 5

Sixth. An ice holder and air cooler comprising a box having an inner wall having air passages therein, a flange or apron depending across said air passages and within said box for the purposes of shielding said passages from ice and water and of forming an air duct or flue and an ice-supporting grating arranged within said box above the air duct. 10

Seventh. An ice holder and air cooler comprising a box having an inner wall having air passages therein, and an outer wall having an inwardly-tapering lower portion and a suitable waste-water exit, a flange or apron depending across said air passages and within said box for the purposes of shielding said passages from ice and water and of forming an air duct or flue, and an ice-supporting grating arranged within said box above the air duct. 15

Eighth. A body cooler comprising an ice receptacle having plane outer walls and inner walls having air passages therein and a central ice-receiving box having air passages in its side walls, a hood connecting the air-conducting walls and depending across and guarding said air passages, horizontal rods extending from the exterior of said ice receptacle, and one or more ice receptacles adapted to be removably supported upon said rods with capability of horizontal adjustment thereon and having an ice-supporting grating and flange-guarded air passages in the inner walls thereof, a sectional frame having a vertical series of supports thereon and devices, as hooks and eyes, upon said ice receptacle or receptacles to engage the supports on the frame whereby a vertically-adjustable support is afforded the body cooler. 20 25

Ninth. The cooler-supporting frame herein described consisting of a series of uprights having outwardly-flaring feet and a vertical series of supports adapted to engage with the supporting attachments on the cooler and thereby support the same at different elevations, and hook and eye connections for connecting and bracing the respective uprights or sections of the frame. 30

Tenth. A body-cooling device comprising a double-walled frame the space between said walls constituting an ice-receiving chamber, said inner wall having a series of air passages and an air-deflecting apron and a dished cap or cover adapted to rest upon the double-walled frame and to receive ice and having a central upwardly-extending portion having perforated side walls and communicating with an air exit in the bottom of said dished cover, substantially as and for the purpose set forth. 35

Eleventh. An apparatus for cooling portions of the body by means of cold air currents and consisting of an ice chamber of a shape to adapt it to fit and conform to that portion of the body to which it is applied and having a central open portion to receive the part to be cooled and a perforated inner wall communicating with the ice chamber and forming air passages substantially as set forth. 40

Twelfth. The body cooler herein described comprising an ice chamber having an outer plane wall having a water exit and an inner wall having air passages therein, an apron extending vertically from said inner wall and within the ice chamber for the purposes of guarding the air passages therein and forming an air flue or passage, a water-receiving gutter surrounding the outer face of said inner wall and having a discharge passage communicating with the ice chamber. 45

Thirteenth. In a body cooler, a dished ice receptacle having an air passage in the bottom thereof and an upwardly-extending box surrounding and guarding said opening and having perforated side walls to permit of the passage therethrough to the opening in the bottom of the ice receptacle of cooled air substantially as set forth. 50

Fourteenth. A body cooler comprising a bottom section consisting of a circumferential ice chamber having a perforated inner wall, a vertical apron or air duct connecting said perforations and ice chamber and a waste discharge, and a top section or cap adapted to rest upon said bottom section and consisting of a dished ice receptacle 55

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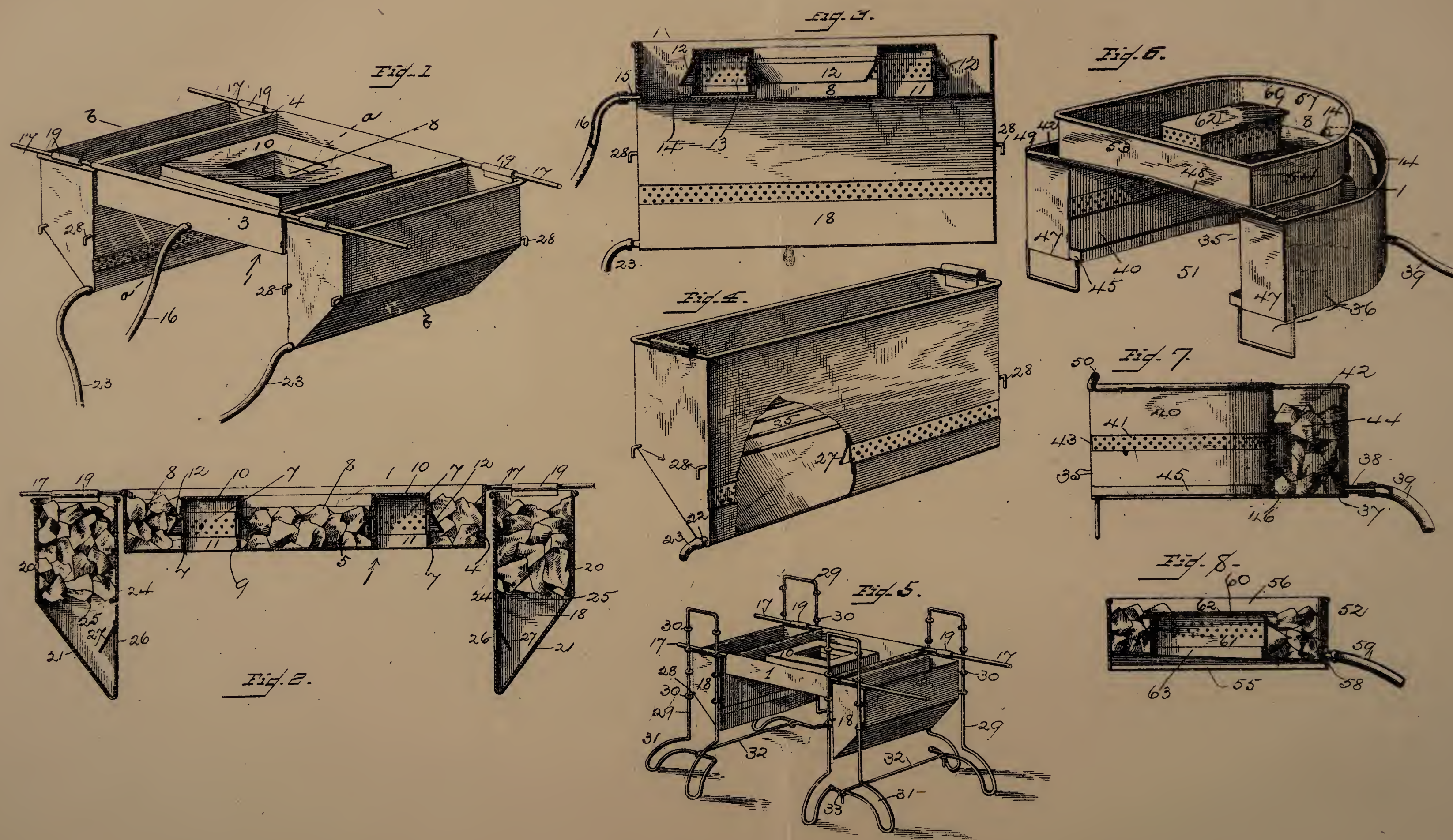
having an opening in its bottom and a box or hood surrounding said opening and having perforated side walls to permit of cold air currents passing from the ice chamber to and through the bottom opening as and for the purpose set forth.

Dated this 5th day of November 1889.

ALLISON BROS.,
Agents for the Applicant.

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[This Drawing is a full-size reproduction of the Original.]

